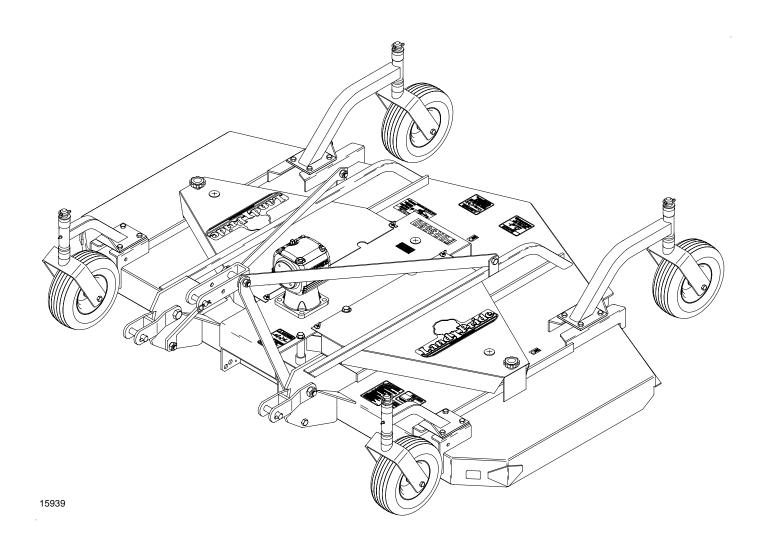
### **Rear Discharge Grooming Mowers**

### **FDR3590**



# *310-229M* Operator's Manual





Read the Operator's manual entirely. When you see this symb 15g39 subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

© Copyright 2007 Printed

12/10/07

Cover photo may show optional equipment not supplied with standard unit.



Important Safety Information	Section 3: Adjustments	
Safety at All Times	Leveling the Mower	
Look For The Safety Alert Symbol	3-Point Hitch Adjustments	
Safety Labels	Belt Tension	
Introduction7		
Application	Section 4: Maintenance and Lubrication	
Using This Manual	Maintenance	
Terminology	Blade Inspection	
Definitions	Blade Removal And Installation	
Owner Assistance	Blade Sharpening or Replacement	
Serial Number Plate	V-Belt Installation	
Further Assistance7	Storage	
Section 1: Assembly and Set-up8	Lubrication	
Tractor Requirements8	Driveline Shaft U-Joints	
Upper Hitch Arms8	Inner Tube Bearings	
Gauge Wheels	Driveline Profiles	
Tractor Hook-Up9	Gearbox	
PTO Hookup9  Checking Driveline Minimum Length9	Wheel Support Bushings & Wheel Bearings	
	Bearing in Blade Spindle Hubs	
Checking Driveline Maximum Length 10		
Accessory Equipment	Section 5: Specifications & Capacities .	
Cutting Blades	Section 6: Features and Benefits	.23
Low Lift Blades	Section 7: Troubleshooting	.24
Medium Lift Blades11	Section 8: Appendix	.25
High Lift Blades	Torque Values Chart	
Mulching Blades	Notes	
Accessory Part Numbers	Warranty	
	•	
Section 2: Operating Instructions		
Operation Check		
Transporting12		
Mowing Instructions		
Un-hooking the Mower		
General Operating Instructions14		

#### © Copyright 2007 All rights Reserved

Land Pride provides this publication "as is" without warranty of any kind, either expressed or implied. While every precaution has been taken in the preparation of this manual, Land Pride assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Land Pride reserves the right to revise and improve its products as it sees fit. This publication describes the state of this product at the time of its publication, and may not reflect the product in the future.

Land Pride is a registered trademark.

All other brands and product names are trademarks or registered trademarks of their respective holders.

Printed in the United States of America.



These are common practices that may or may not be applicable to the products described in this manual.

#### Safety at All Times

Thoroughly read and understand the instructions given in this manual before operation. Refer to the "Safety Label" section, read all instructions noted on them.

Do not allow anyone to operate this equipment who has not fully read and comprehended this manual and who has not been properly trained in the safe operation of the equipment.

- ▲ Operator should be familiar with all functions of the unit.
- ▲ Operate implement from the driver's seat only.
- ▲ Do not leave tractor or implement unattended with engine running.
- ▲ Dismounting from a moving tractor could cause serious injury or death.
- ▲ Do not stand between the tractor and implement during hitching.
- ▲ Keep hands, feet, and clothing away from power-driven parts.
- ▲ Wear snug fitting clothing to avoid entanglement with moving parts.
- ▲ Watch out for wires, trees, etc., when raising implement. Make sure all persons are clear of working area.
- ▲ Turning tractor too tight may cause implement to ride up on wheels. This could result in injury or equipment damage.





#### Look For The Safety Alert Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

#### Be Aware of Signal Words

A Signal word designates a degree or level of hazard seriousness. The signal words are:

#### **A** DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

#### **A** WARNING

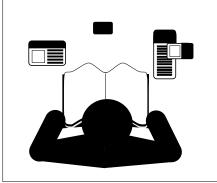
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

#### **A** CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

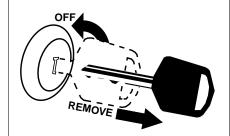
#### For Your Protection

▲ Thoroughly read and understand the "Safety Label" section, read all instructions noted on them.



#### Shutdown and Storage

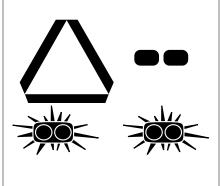
- ▲ Lower machine to ground, put tractor in park, turn off engine, and remove the key.
- ▲ Detach and store implements in a area where children normally do not play. Secure implement by using blocks and supports.



### These are common practices that may or may not be applicable to the products described in this manual.

#### Use Safety Lights and Devices

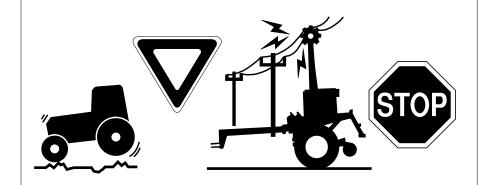
- ▲ Slow moving tractors, selfpropelled equipment, and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
- ▲ Flashing warning lights and turn signals are recommended whenever driving on public roads. Use lights and devices provided with implement.



### Transport Machinery Safely

- ▲ Comply with state and local laws.
- Maximum transport speed for implement is 20 mph. DO NOT EXCEED. Never travel at a speed which does not allow adequate control of steering and stopping. Some rough terrain require a slower speed.
- Sudden braking can cause a towed load to swerve and upset.

- Reduce speed if towed load is not equipped with brakes.
- ▲ Use the following maximum speed - tow load weight ratios as a guideline:
  - **20 mph** when weight is less than or equal to the weight of tractor
  - **10 mph** when weight is double the weight of tractor.
- **IMPORTANT**: Do not tow a load that is more than double the weight of tractor.



### Keep Riders Off Machinery

- Riders obstruct the operator's view they could be struck by foreign objects or thrown from the machine.
- Never allow children to operate equipment.



#### **Practice Safe Maintenance**

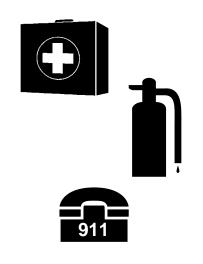
- ▲ Understand procedure before doing work. Use proper tools and equipment, refer to Operator's Manual for additional information.
- ▲ Work in a clean dry area.
- ▲ Lower the implement to the ground, put tractor in park, turn off engine, and remove key before performing maintenance.
- Allow implement to cool completely.
- ▲ Do not grease or oil implement while it is in operation.
- ▲ Inspect all parts. Make sure parts are in good condition & installed properly.
- ▲ Remove buildup of grease, oil or debris
- Remove all tools and unused parts from implement before operation.



### These are common practices that may or may not be applicable to the products described in this manual.

#### **Prepare for Emergencies**

- ▲ Be prepared if a fire starts.
- ▲ Keep a first aid kit and fire extinguisher handy.
- ▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.



### Wear Protective Equipment

- ▲ Protective clothing and equipment should be worn.
- ▲ Wear clothing and equipment appropriate for the job. Avoid loose fitting clothing.
- ▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Operating equipment safely requires the full attention of the operator. Avoid wearing radio headphones while operating machinery.



#### Avoid High Pressure Fluids Hazard

- Escaping fluid under pressure can penetrate the skin causing serious injury.
- Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
- ▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.

  Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- ▲ If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be treated within a few hours or gangrene may result.



#### Handle Chemicals Properly

- Protective clothing should be worn.
- ▲ Handle all chemicals with care.
- ▲ Follow instructions on container
- ▲ Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil, and property.
- ▲ Inhaling smoke from any type of chemical fire is a serious health hazard.
- ▲ Store or dispose of unused chemicals as specified by the chemical manufacturer.



#### **Tire Safety**

- ▲ Tire changing can be dangerous and should be preformed by trained personnel using the correct tools and equipment.
- ▲ When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.
- When removing and installing wheels, use wheel handling equipment adequate for the weight involved.

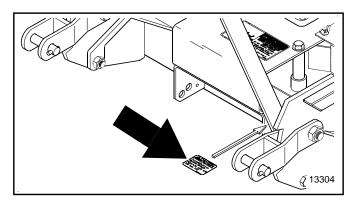


#### Safety Labels

Your Grooming Mower comes equipped with all safety labels in place. They were designed to help you safely operate your implement. Read and follow their directions.

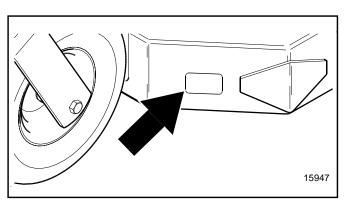
- 1. Keep all safety labels clean and legible.
- Replace all damaged or missing labels. To order new labels go to your nearest Land Pride dealer or visit our dealer locator at landpride.com.
- 3. Some new equipment installed during repair requires safety labels to be affixed to the replaced component as

- specified by Land Pride. When ordering new components make sure the correct safety labels are included in the request.
- 4. Refer to this section for proper label placement. To install new labels:
  - a. Clean the area the label is to be placed.
  - b. Spray soapy water on the surface where the label is to be placed.
  - c. Peel backing from label. Press firmly onto the surface.
  - d. Squeeze out air bubbles with the edge of a credit card.



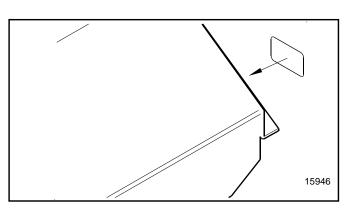


**818-130C** Caution





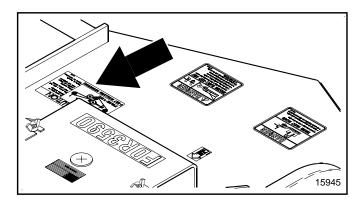
818-229C Amber Reflector

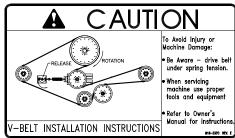




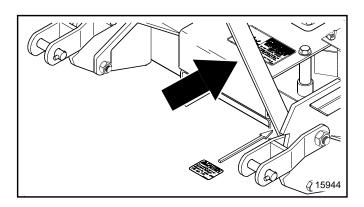
818-230C Red Reflector

#### Important Safety Information



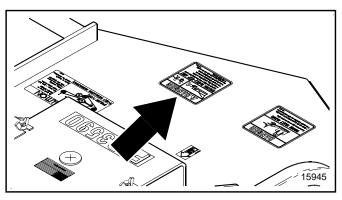


818-237C Caution: V-Belt



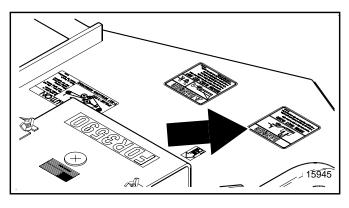


**818-142C**Danger:
Rotating Driveline



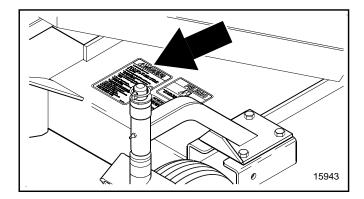


**818-555C**Danger: Rotating Blade





**818-556C**Danger: Thrown Object



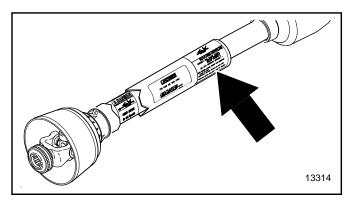
To prevent serious injury or death:

- Read and understand Operator's manual before using.
- Do not permit riders on the tractor or mower. Never carry child on tractor seat.
- Operate with guards installed and in good condition.
- Operate only with tractor equipped with ROPS and seatbelts.
- Keep away from moving parts.
- Stop engine, set brake and wait for all moving parts to stop before dismounting.
- Be sure lights and reflectors required by law are clean and in good working order before transporting.
- Do not allow children to operate mower.
- Travel with SMV and lights that follow local codes.
- Clean debris from mowing area.
  Do not operate in the raised position.
- Support securely before working beneath unit.
- Review safety instructions annually.

Si no lee ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad.

#### 818-558C

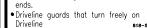
Warning: General Safety

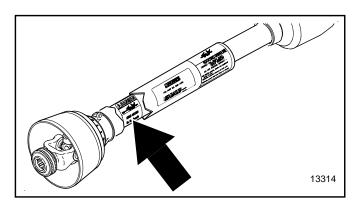




818-552C

Danger: **Rotating Driveline** 







818-540C

Danger: Guard Missing

#### Introduction



Land Pride welcomes you to the growing family of new product owners.

This Grooming Mower has been designed with care and built by skilled workers using quality materials. Proper assembly, maintenance and safe operating practices will help you get years of satisfactory use from the machine.

#### **Application**

The Land Pride FDR3590 Rear Discharge Grooming Mowers are designed and built to provide high productivity and excellent cutting quality on well-maintained lawn and turf surfaces. These mowers are adapted for category 1 attachment and operation on 25-60hp utility tractors. The 90" rear discharge cutting decks and highly durable construction make them well suited to meet the mowing needs of large estate owners, golf course, theme parks, municipalities, ranchers, horse breeders, and commercial mowing and landscape operations. The rear discharge cutting deck will provide a superb quality of cut and superior clipping distribution when grass is cut on a frequent basis and ground conditions are not wet.

See "Section 5: Specifications & Capacities" on page 22 and "Section 6: Features and Benefits" on page 23 for additional information and performance enhancing options.

#### **Using This Manual**

- This Operator's Manual is designed to help familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.
- The information contained within this manual was current at the time of printing. Some parts may change slightly to assure you of the best performance.
- To order a new Operator's or Parts Manual contact your authorized dealer. Manuals can also be downloaded, free-of-charge from our website at www.landpride.com or printed from the Land Pride Service & Support Center by your dealer.

#### **Terminology**

"Right" or "Left" as used in this manual is determined by facing the direction the machine will operate while in use unless otherwise stated.

#### **Definitions**

**NOTE:** A special point of information that the operator must be aware of before continuing.

**IMPORTANT:** A special point of information related to its preceding topic. Land Pride's intention is that this information should be read and noted before continuing.

#### **Owner Assistance**

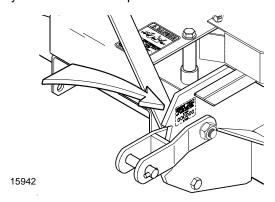
The Warranty Registration card should be filled out by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

If customer service or repair parts are required contact a Land Pride dealer. A dealer has trained personnel, repair parts and equipment needed to service the Grooming Mower.

The parts on your Grooming Mower have been specially designed and should only be replaced with genuine Land Pride parts. Therefore, should your Grooming Mower require replacement parts go to your Land Pride Dealer.

#### **Serial Number Plate**

For prompt service always use the serial number and model number when ordering parts from your Land Pride dealer. Be sure to include your serial and model numbers in correspondence also. Refer to Figure 1 for the location of your serial number plate.



Serial Number Plate Location Figure 1

#### **Further Assistance**

Your dealer wants you to be satisfied with your new Grooming Mower. If for any reason you do not understand any part of this manual or are not satisfied with the service received, the following actions are suggested:

- 1. Discuss the matter with your dealership service manager making sure he is aware of any problems you may have and that he has had the opportunity to assist you.
- If you are still not satisfied, seek out the owner or general manager of the dealership, explain the problem and request assistance.
- 3. For further assistance write to:

#### Land Pride Service Department 1525 East North Street

P.O. Box 5060 Salina, Ks. 67402-5060

E-mail address lpservicedept@landpride.com

#### **Tractor Requirements**

This mower is designed with a 3-Point category I hitch. Horse power rating of tractor should not exceed 60 horse power. Tractor's rear power take-off (PTO) speed and spline type must be capable of 540 RPM and 1 3/8"-6 spline rear power take-off.

**NOTE:** In order to maintain steering control, ballast may need to be added to your tractor. To determine whether or not to add the ballast, refer to your tractors' operator manual.

#### **Upper Hitch Arms**

#### Refer to Figure 1-1:

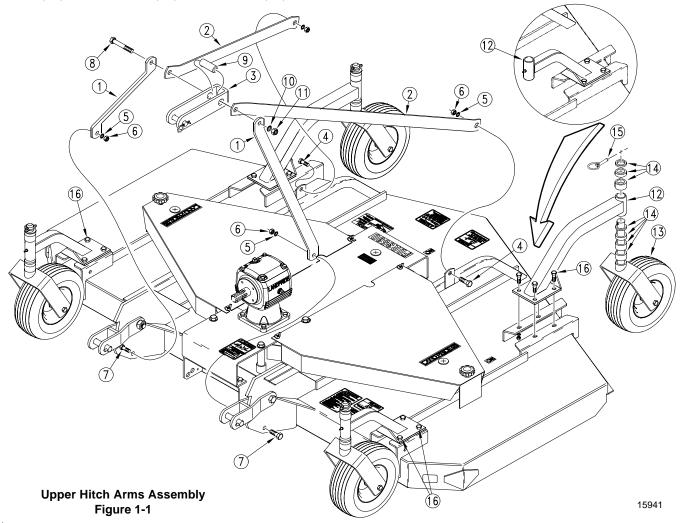
- 1. Remove upper hitch bars (#1), upper hitch braces (#2), and upper pivoting hitch subassembly (#3) from storage position on top of mower deck.
- 2. Bolt upper hitch braces (#2) to the mounting tabs located on the back of the deck using 5/8"-18 x 1 1/2" GR5 bolts (#4), lock washer (#5), and hex nut (#6).
- 3. Mount upper hitch bars (#1), to the inside of the front hitch plates on the frame using 5/8"-18 x 1 3/4" GR5 bolts (#7), lock washers (#5) and hex nuts (#6).

- 4. Remove 5/8"-18 x 5" GR5 long bolt (#8), lock washer (#10), and hex nut (#11) from the upper pivoting hitch subassembly.
- 5. Swing upper hitch bars (#1) up to a vertical position. Raise upper hitch braces (#2) up inside the upper hitch bars as shown.
- 6. Assemble upper pivoting hitch (#3), spacer top hitch (#9), 5/8" x 5" long bolt (#8), lock washer (#10), and hex nut (#11) as shown.
- 7. Tighten all installed 5/8" nuts to proper torque. See Torque Values Chart on page 25.

#### **Gauge Wheels**

#### Refer to Figure 1-1:

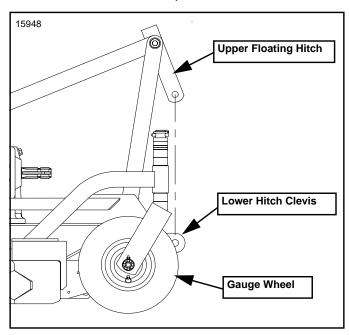
- Remove 1/2"-13 x 1 1/4" GR5 bolts (#16) securing gauge wheel arms (#12) and turn gauge wheel arms 180 degrees as shown. Replace bolts and retighten to proper torque per Torque Values Chart on page 25.
- 2. Mount gauge wheels (#13) to gauge wheel arms (#12), placing the 1/4", 1/2" and 1" spacers (#14) at the desired depth. Secure gauge wheels with the linchpins (#15).



#### **Tractor Hook-Up**

#### Refer to Figure 1-2:

- Be certain tractor draw bar will not interfere. Move draw bar ahead or remove if required. Draw bar should also be checked for clearance when unit is being raised for the first time.
- 2. Align lower link arms of tractor to the hitch clevises on the mower. Insert lower hitch pins into lower ball swivels and attach linchpins.



Tractor Hook-Up Figure 1-2

- 3. Attach tractor top link to upper floating hitch on mower with pin supplied. Secure with hairpin cotter.
- 4. To allow mower flotation, adjust tractor top link in or out to place upper hitch pin vertically above the lower hitch pins as shown in Figure 1-2.

#### **PTO Hookup**

If the Grooming Mower is to be used on more than one tractor, an additional driveline may be required.



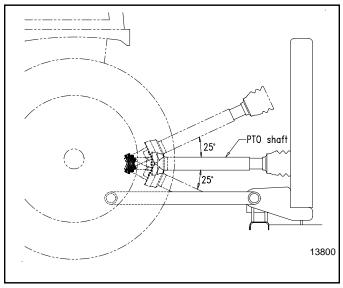
Do not operate a damaged driveline. Damaged drivelines can cause serious injury or death.



Tractor PTO shield and all Grooming Mower guards must be in place at all times during operation!

**IMPORTANT:** Some tractors are equipped with multi-speed PTO ranges. Be certain your tractor 's PTO is set for 540 rpm.

**IMPORTANT:** Avoid premature driveline breakdown. A driveline that is operating **must not exceed** an angle of 25 degrees up or down while operating the 3-point lift. See Figure 1-3 below.



Maximum PTO driveline Movement During Operation Figure 1-3

**IMPORTANT:** Always check driveline maximum and minimum length during initial setup, when connecting to a different tractor and when alternating between using a quick hitch and a standard 3-point hitch. More than one driveline may be required to fit all applications.

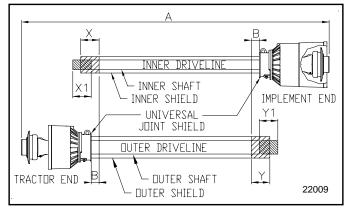
#### **Checking Driveline Minimum Length**

**IMPORTANT:** Aligning tractor's PTO shaft level with the Grooming Mower's PTO shaft is necessary when checking to see if the driveline will fit correctly between tractor and Grooming Mower.

#### Refer to Figure 1-4 on page 10

- Start tractor and slowly engage tractor's hydraulic 3-point to lift the lower arms until the Grooming Mower's driveline shaft is approximately level with tractor's PTO shaft.
- Slide inner driveline universal joint over the splined input shaft of the gearbox. Secure with driveline yoke locking device.

3. Slide tractor outer driveline universal joint over the tractor's splined driveline shaft. Secure with driveline yoke locking device. Skip to step 5 if driveline fits between tractor and implement.



Driveline Shortening Figure 1-4

- The driveline will require shortening if it is too long. Shorten driveline as follows:
  - a. Raise 3-point lower arms until Grooming Mower and tractor PTO shafts are approximately level with each other. Securely block Grooming Mower frame in this position. Set tractor in park, shut tractor engine off, set park brake and remove switch key.
  - b. Pull driveline apart into two sections as shown in Figure 1-4. Attach outer driveline universal joint to the tractor PTO shaft and inner driveline universal joint to the Grooming Mower gearbox shaft. Pull on each driveline section to be sure the universal joints are secured to the shafts.
  - c. Hold driveline sections parallel to each other to determine if they are too long. The inner and outer shields on each section should end approximately 1" short of reaching the universal joint shield on the adjacent section (see "B" dimension). If they are too long, measure 1" ("B" dimension) back from the universal joint shield and make a mark at this location on the inner and outer driveline shields.
  - d. Cut off the inner shield at the mark ("X" dimension). Cut the same amount off the inner shaft ("X1" dimension). Repeat cut off procedure ("Y" & "Y1" dimensions) to the outer driveline half.
  - e. Remove all burrs and cuttings.

#### **Checking Driveline Maximum Length**

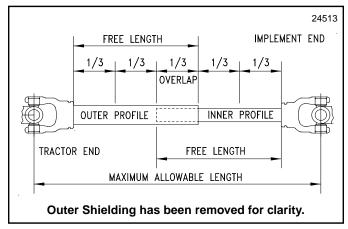
Make sure you check "Checking Driveline Minimum Length" on page 9 before checking Checking Driveline Maximum Length.

#### Refer to Figure 1-5

The driveline maximum length must, when fully extended, have a minimum overlap of the profile tubes by

not less than 1/3 the free length with both inner and outer profile tubes being of equal length.

- Apply multi-purpose grease to the inside of the outer shaft and reassemble the driveline.
- 2. Assemble the two driveline profiles together with just 1/3 overlapping of the profile tubes as shown in Figure 1-5. Measure and record this overall length for checking driveline length in step 9 below.
- Attach inner driveline yoke end to the Grooming Mower gearbox input shaft.



Driveline Maximum Length Figure 1-5

- Attach outer driveline yoke end to the tractor's PTO shaft.
- The driveline should now be moved back and forth to insure that both ends are secured to the tractor and Grooming Mower PTO shafts. Reattach any end that is loose.

**IMPORTANT:** A small chain is supplied with the driveline. This chain must be attached to the inner driveline shield and to the Grooming Mower to restrict shield rotation.

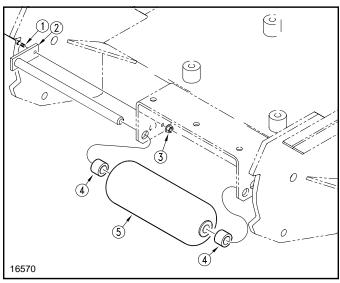
- 6. Hook driveline safety chain in the hole in the inner driveline guard. Attach the other end to the Grooming Mower's main frame.
- Start tractor and raise Grooming Mower just enough to remove blocks.
- Slowly engage the tractor's hydraulic 3-point to lower the Grooming Mower. Check for sufficient drawbar clearance. Move drawbar ahead, aside or remove if required.
- Raise and lower implement to find maximum extended driveline length. Check to make certain that the driveline overall length does not extend beyond the maximum recorded length in step 2 above.

#### **Accessory Equipment**

#### **Anti-Scalping Front Roller**

#### Refer to Figure 1-6:

- 1. Insert 4 x 10 roller wheel (#5) and spacer tubes (#4) between mounting bracket flanges as shown.
- 2. Install front roller shaft (#2) through the bracket flanges, spacers and roller.
- Secure roller shaft with 3/8"-16 x 1" GR5 hex head cap screw (#1) and lock nut (#3). Tighten lock nut to proper torque. See Torque Values Chart on page 25.



Front Roller Assembly Figure 1-6

#### **Cutting Blades**

There are four blade choices to select from based upon soil condition, density of grass, and tractor horsepower. The appearance of the finish cut may vary between low lift and high lift blades. See your Land Pride dealer for blade availability.

#### Low Lift Blades

Land Pride's low lift blades are designed for mowing over sandy soil terrain where high suction lift is not crucial. Sand sucked into the blades accelerates blade wear more than normal. Low lift blades are recommended because they produce a lower suction keeping sand uplift and blade wear to a minimum.

#### **Medium Lift Blades**

Land Pride's medium lift blades are great when horsepower is a concern. They produce a medium suction for lifting grass requiring less horsepower than high lift blades. Medium Lift Blades are factory furnished with your mower.

#### **High Lift Blades**

Land Pride's high lift blades develop the greatest suction for lifting grass before cutting for that fresh clean cut look. However, they may require more horsepower especially when cutting tall dense grass. They are not recommended for sandy soil conditions.

#### **Mulching Blades**

Land Pride's mulching blades are designed to chop leaves and/or grass into smaller parts leaving your lawn looking fresher and cleaner than ever before.

#### **Accessory Part Numbers**

#### Land Pride All-Flex Mower Accessories

Part No. Part Description

**Front Roller** 

310-233A FDR3590 Front Roller

Low Lift Blades (3 blades needed)

890-205A Mower Blade 5/16 x 31 17/32 SD LL CW

Medium Lift Blades (3 blades needed)

890-533C Mower Blade 5/16 x 31 17/32 SD ML CW

High Lift Blades (3 blades needed)

890-223C Mower Blade 5/16 x 31 17/32 SD HL CW

Mulching Blades (3 blades needed)

890-704C Mower Blade 1/46 x 31 17/32 SD CW

See your Land Pride dealer for blade availability.



#### Tractor Shut Down Procedure

It is essential that the tractor be shut down as noted below before making any inspections, maintenance and/ or repairs to the tractor and/or mower.

- Park tractor on a level surface. Don't work under or around an implement parked on a steep incline.
- 2. Place tractor in park and set park brake.
- 3. Disengage PTO if operating.
- 4. Shut engine off and remove switch key.
- Wait for PTO to come to a complete stop before dismounting tractor.
- 6. Wear safety glasses.

#### **Operation Check**

It is absolutely essential that no one operates the Grooming Mower without first having read, fully understood and become totally familiar with the Operator's Manual. Make sure the operator has paid particular attention to:

- Important Safety Information, page 1
- Section 1: Assembly and Set-up, page 8
- Section 2: Operating Instructions, page 12
- Section 3: Adjustments, page 15
- Section 4: Maintenance and Lubrication, page 17

Make the following inspections after attaching the Grooming Mower to the tractor. See hook-up instructions beginning on page 9. Make certain PTO is disengaged and completely stopped before continuing.

- 1. Inspect tractor safety equipment to make sure it is in good working condition.
- 2. Complete the Operating Checklist below:

Operating Checklist								
	Check	Reference						
	Check oil level in gearboxes.	Section 5 Page 21						
	Check that all plugs in gearbox have been replaced properly.	Section 5 Page 21						
	Check initially and periodically for loose bolts and pins. Be sure all nuts and bolts are tight. Especially make sure mower blades, bolts and nuts are tight.	Section 8 Page 25						
	Be certain all guards and shields are in place and in good condition.	Section 1 Page 1						
	Lubricate the mower as needed. Refer to "Maintenance and Lubrication".	Section 5 Page 17						

- Carefully raise and lower the implement to ensure that the drawbar, tires, and other equipment on the tractor do not contact the frame or PTO driveline.
- 4. With the PTO disengaged and completely stopped, check the mower blades for sharpness. See "Service Mowing Blades" on page 17.

**IMPORTANT:** Do not exceed rated PTO speed of mower. Excessive engine speed will cause damage to the power train components.

**IMPORTANT:** Stop PTO rotation immediately if vibration occurs during operation. Wait for mower to come to a complete stop. Follow all tractor shut down procedures before dismounting from the tractor to check for probable causes.

5. Set tractor throttle to idle or slightly above idle and slowly engage the PTO. Once the Grooming Mower is running smoothly, increase tractor PTO speed to 540 rpm PTO speed. Stop PTO rotation immediately if vibration occurs at any time. Wait for the PTO to come to a complete stop and then dismount from the tractor to check for probable causes.

#### **Transporting**



#### **CAUTION**

When traveling on public roads, whether at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. Comply with all Federal, State, and local laws.

**NOTE:** Always disengage PTO before raising the mower to transport position.

- When raising mower to transport position, be sure driveline does not contact tractor or mower. Adjust and set tractor's 3-point hitch lift height so that the PTO shaft does not contact mower deck in the fully raised position.
- 2. Be sure to reduce tractor ground speed when turning; and leave enough clearance so the mower does not contact obstacles such as buildings, trees or fences.
- Select a safe ground travel speed when transporting from one area to another. When traveling on roadways, transport in such a way that faster moving vehicles may pass you safely. A slow moving vehicle sign should always be properly displayed when traveling on public roads or right-of ways.
- 4. Shift tractor to a lower gear when traveling over rough or hilly terrain.

#### Section 2: Operating Instructions

#### **Mowing Instructions**



#### **DANGER**

Gearbox shields must be secured in place when operating to avoid injury or death from entanglement in rotating drivelines.



#### **CAUTION**

Do not over speed PTO or machine damage may result. Know what your tractor requirements are.



#### **DANGER**

Do not use deck as a fan. Cutting blades are not properly designed or guarded for this use. Using the deck as a fan can result in injury and/or death.



#### **DANGER**

Do not operate and/or travel across steep inclines where a tractor can roll-over resulting in serious injury or death. Consult your tractor's manual for acceptable inclines the tractor is capable of traveling across.



#### **CAUTION**

When mowing in sandy soil areas, wear may occur to your mower blades caused from sand erosion. Frequent inspection should be made and blades replaced if damaged. Low lift blades are available from your Land Pride dealer.

 Clear the area to be mowed of rocks, branches and other foreign objects that might be picked up and thrown by the mower blades.

**IMPORTANT:** Do not exceed rated PTO speed of mower. Excessive engine speed will cause damage to the power train components.

**IMPORTANT:** Stop PTO rotation immediately if vibration occurs during operation. Wait for mower to come to a complete stop. Follow all tractor shut down procedures before dismounting from the tractor to check for probable causes.

- Lower mower to ground. Set tractor throttle at idle. Engage PTO to start blades rotating.
- 3. Operate with 540 rpm PTO tractor. Mower blades will cut better at a 540 RPM than at reduced throttle.
- 4. At first, begin mowing in a low gear and shift up until the desired speed is achieved maintain 540 PTO rpm regardless of gear selection.
- After mowing the first 50 feet, stop and check to see that the mower is adjusted properly.

- 6. **Do not** make sharp turns or attempt to back up while mower is on the ground.
- Do not engage PTO with mower in the fully raised position. Do not engage or disengage PTO at full throttle.
- 8. Grass is best cut when it is dry. Mowing wet grass can cause plugging resulting in grass clumps behind the mower.
- Mower blades will cut better at a faster blade speed than at reduced throttle.
- 10. Grass should be mowed frequently as shorter clippings deteriorate faster.
- 11. If mowing extremely tall grass, it is best to raise cutting height and mow the area, then lower cutting height and mow a second time at the desired height.
- 12. Periodically check for foreign objects wrapped around the Grooming Mower blades. Remove foreign objects only after following "Tractor Shut Down Procedure" on page 12.

#### Un-hooking the Mower

The following steps should be done when un-hooking the Grooming Mower from the tractor.

- 1. Park on a level solid surface.
- 2. Shut tractor engine off and engage parking brake.
- 3. Lower deck to level ground or onto blocks supporting the deck just above ground level.
- 4. Follow all tractor shut down procedures outlined on page 12 before dismounting from the tractor.
- 5. Unhitch Grooming Mower from tractor.
- 6. See "Storage" on page 19 if mower is not going to be used for a long time.

#### **General Operating Instructions**

By now you should have thoroughly read your FDR Grooming Mower Operator's Manual, properly attached your Land Pride FDR3590 to your tractor, and reviewed the operating checklist. You should have also inspected the area where you intend to mow and cleared it of safety hazards and foreign objects. If you have not yet completed all of these functions, it is an absolute must that you do so now before proceeding.

Now that you are properly briefed and prepared its time to start the tractor and move to your starting point. When transporting to your mowing site, select a safe ground transport speed. When traveling on roadways, transport in such a manner that faster moving vehicles can easily see you and pass you safely. When travelling over rough and hilly terrain, reduce your speed, avoid quick or sharp steering corrections. Take extra care to insure that the mower doesn't come into contact with obstacles such as trees, buildings or fences.

When you have arrived at the mowing site, start the tractor, raise the deck to make sure that everything is properly attached and that the driveline is not in a bind or in contact with the mounting frame. Also make sure the tractor tires aren't in contact with the deck. With the deck still in the raised position, proceed to your starting point and lower your deck to the ground in mowing position. Reduce your tractor engine rpm to idle and engage the PTO. Gradually raise the tractor engine rpm to achieve the 540-rpm PTO speed. Now begin mowing at a ground speed of approximately 4-5mph.

The proper mowing speed will ultimately be determined by ground conditions, desired finish, common sense, and good safe mowing practices by the operator. Grass is best cut when it is dry. Mowing in wet grass can cause plugging resulting in grass clumps behind the mower. Grass should be mowed frequently as shorter clippings deteriorate faster. When mowing in tall grass it is best to raise the cutting height, mow the area, then lower the cutting height, and mow a second time.

After mowing approximately 50 ft., stop the tractor, disengage the PTO, set the brake, turn off the engine, remove the key, and dismount the tractor to see if the mower is adjusted properly. If you need to dismount the tractor on a hill or incline to inspect, adjust, or park the mower for any reason, place wheel chocks under the rear tires for added safety. Once you have made necessary adjustments, you may continue mowing. Do not engage the PTO at high engine rpm and avoid making sharp turns if at all possible. If some one approaches while you are mowing, disengage the PTO and stop the tractor.

With a little practice and experience you will become very good at operating your Land Pride FDR3590 Rear Discharge Grooming Mower. Always remember that there is no substitute for proper maintenance and good safe operating practices.

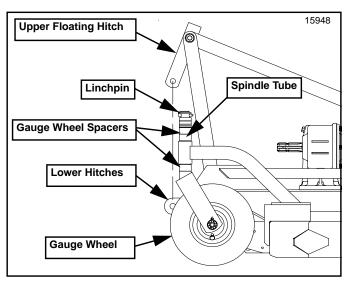
See "Section 5: Specifications & Capacities" on page 22 and "Section 6: Features and Benefits" on page 23 for additional information and performance enhancing options.



#### **Leveling the Mower**

**NOTE:** Tractor and mower should be on level ground.

- 1. Set lower hitches and upper floating hitch, as shown below in Figure 3-1.
- Start tractor and raise mower, watching that tractor draw bar (if not removed) does not interfere with mower.
- 3. Slowly lower mower until gauge wheels touch the ground and the lower mower 3-point hitch bars are parallel to the ground in floating position. Set tractor 3-point stop.
- Set park brake and turn off tractor. Remove key from ignition.
- 5. Rotate blades parallel to direction of travel as shown in Figure 3-2 below.
- 6. Measure clearance from the cutting edge to the ground at front and rear of the blade. This measurement should be equal or have the blade at the front of the mower not more than 1/2" lower than the blade at the rear of the mower.



3-Point Hitch Figure 3-1

#### **Cutting Height Adjustment**

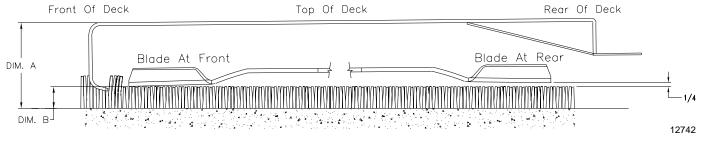
Refer to Figure 3-1:

- Using the tractor, raise the mower off the ground and support under it with secure blocking so not to let the mower drift down during maintenance.
- 2. Holding wheel and yoke assembly up, remove quick-lock pin from top of gauge wheel spindle.
- Position 1" spacers, 1/2" spacer and 1/4" spacers as required. All spacers on top of spindle tube allows for approximately 3/4" cutting height. Adjustments range from 3/4" to a maximum of 3-1/4" in 1/4" increments.

Refer to "Leveling the Mower" beginning on this page.

For a guide on measuring cutting height refer to Cutting Height Chart below.

Cutting Height Chart						
Α	В					
5 5/8"	3/4"					
6 1/8"	1 1/4"					
7 1/8"	2 1/4"					
8 1/8"	3 1/4"					
9 1/8"	4 1/4"					
10 1/8"	5 1/4"					



Cutting Height Figure 3-2

#### **3-Point Hitch Adjustments**

The 3-point hitch system on this mower has been designed for front to back flotation when mowing on uneven terrain. Adjust tractor's top link to place the upper hitch pin vertically above the lower hitch pins as shown in Figure 3-1 on page 15.



#### **CAUTION**

Engage parking brake, shut off tractor, remove key and disengage PTO before making any height adjustments!

#### **Belt Tension**

Refer to Figure 3-3:



#### **CAUTION**

Belt drive system under spring tension; use care to avoid bodily harm!

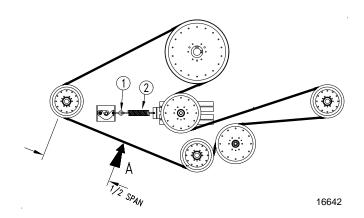
- 1. To check tension, apply force at arrow A. With a tension tester and deflect belt 1/4". The force required to get this deflection should range from 7 to 10 lbs.
- 2. To adjust belt tension, adjust eyebolt (#1), as necessary. This adjustment will increase or decrease tension on spring (#2).

 Excessive tension on the belt may lead to premature failure of belt and drive components. Excessive tension on the belt may also lead to a safety hazard to the operator or bystanders. Not enough tension on the belt may lead to premature failure of the belt due to excessive slipping.



#### WARNING

Excessive tension on the belt may shorten the useful life of belt and drive components. Excessive tension on the belt may also lead to a safety hazard to the operator or bystanders.



Belt Tension Figure 3-3



#### **Maintenance**

Proper servicing and adjustment is the key to the long life of any implement. With careful and systematic inspection, you can avoid costly maintenance, time and repair.



#### **CAUTION**

For safety reasons, each maintenance operation must be performed with the tractor's PTO disengaged, the mower lowered completely to the ground or on safely supported blocking, tractor engine shut off and ignition key removed.

- After using the mower for several hours, check all bolts to be sure they are tight and check the tension of the drive belt. Refer to Belt Tension in the "Adjustments" section on page 16.
- Also check drive belt tension after several hours of mowing. Refer to Belt Tension in the "Adjustments" section on page 16.
- Lubricate items as listed under Lubrication, this section, starting on page 20.
- Replace any worn, damaged or illegible safety labels by obtaining new labels from your Land Pride Dealer. Information about labels is located under Safety Labels in the "Important Safety Information" section starting on page 1.

## Service Mowing Blades Blade Inspection

#### Refer to Figure 4-1:

Blade Wear: As blades wear and are resharpened, the blade performance will be reduced.

Bent, Deformed or Split Blades: Should be removed from unit and discarded. **DO NOT** attempt to straighten for reuse.



#### **WARNING**

**DO NOT** attempt to modify blade, such as hard surfacing, heat or cold treating and/or by any other method.



#### **WARNING**

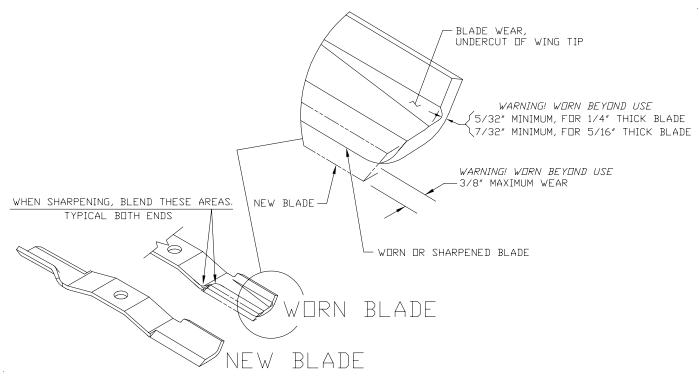
**DO NOT** try to straighten a blade that is bent. Never weld a broken or cracked blade. ALWAYS replace with a new Land Pride blade to assure safety.

#### **Blade Removal And Installation**



#### **CAUTION**

Depending on blade rotation, bolts attaching mower blades to their respective spindles may be either left hand or right hand. Prevent spindle and/or bolt damage by knowing which hand the threads are before removing and/or tightening any blade mounting bolts.



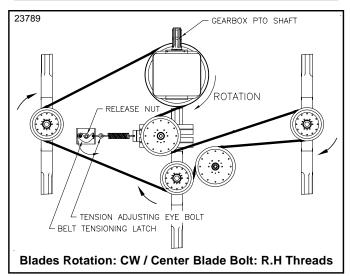
Inspection of Blades & Sharpening Figure 4-1

19328

#### Refer to Figure 4-2 & Figure 4-2:

 Verify blade rotation and bolt thread type (right hand or left hand) before loosening center blade bolts and removing blade to be sharpened or replaced. The FDR3590 is equipped with right hand threaded center blade bolts.

**IMPORTANT:** Center Blade bolts have right hand threads.



Blade Placement Figure 4-2

#### Refer to Figure 4-3:

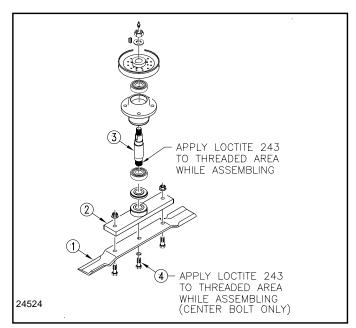
- Remove blades by grasping the blade end with a rag or thick padded glove while loosening the blade mounting bolt.
- Remove center blade bolt (#4) and two outside blade bar bolts from the bottom of the blade to be replaced.

**IMPORTANT:** Replace blades with Land Pride blades only.

**IMPORTANT:** Always install blades with cutting edge facing direction of blade spindle rotation and with wing tips pointing up towards bottom of deck.

**IMPORTANT:** See Figure 4-3. Loctite is not required if blade (#1) is removed without removing blade bar (#2). However, If blade bar (#2) is removed from spindle shaft (#3), then apply loctite 243 to spindle shaft threads and to center bolt threads (#4).

- Reinstall blade, blade washer and bolt. Care should be taken when installing the blade bolt to not get it cross threaded and to know if the bolt is right hand or left hand. Do not exceed 55 ft.-lbs. of torque on bolt.
- Reinstall the two outside bolts. Tighten to correct torque listed in the *Torque Values Chart* in the "Appendix" section on page 25.



Blade & Blade Bar Removal Figure 4-3

#### **Blade Sharpening or Replacement**

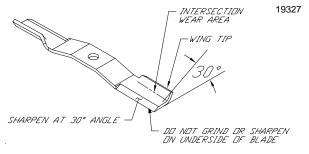


ALWAYS wear eye protection and gloves when sharpening a blade.

**IMPORTANT:** Always install blade with the cutting edge facing direction of rotation.

**IMPORTANT:** Replace blades with Land Pride blades only.

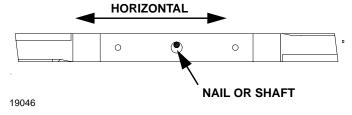
- If the blade cutting edge is dull or nicked, it should be replaced or sharpened. Remove blades for replacing or sharpening by grasping end of the blade using a rag or a thick, padded glove, while loosening and removing the bolt/bolts that mount the blade.
- Clean blade, blade washer and mounting surface of all debris before replacing or sharpening. Grind cutting edge at the same bevel as the original. See Figure 4-4. Sharpen only the top of the cutting edge to maintain sharpness.



Blade Sharpening Figure 4-4

#### Section 4: Maintenance and Lubrication

3. Check blade balance by positioning the blade horizontally on a nail or shaft through the center hole. See Figure 4-5. If either end of the blade rotates downward, grind (remove) metal on that end until blade will balance. The blade is properly balanced when neither end drops. Balance of a blade is generally maintained by removing an equal amount of material from each end of blade when sharpening.



Blade Balancing Figure 4-5

4. Mount blade with wing tips pointing up towards bottom of deck. Reinstall blade, blade washer and bolt. Care should be taken when installing blade bolt not to get it cross threaded. Do not exceed 55 ft.-lbs. of torque on bolt.

**NOTE:** Care should be taken in order not to remove any more material than necessary to sharpen blade.

#### Storage

At end of working season or when the mower will not be used for a long period, it is good practice to clean off any dirt or grease that may have accumulated on the mower and any of the moving parts.

- Clean off any dirt or grease that may have accumulated on the deck and moving parts. Scrape off compacted dirt from the bottom of the deck and then wash the surface thoroughly with a garden hose. A coating of oil may also be applied to the lower deck area to minimize oxidation.
- Check blades for wear and replace if necessary, see Servicing Mowing Blades, this section on page 17.
- Inspect mower for loose, damaged or worn parts and adjust or replace as needed.
- 4. Lubricate as noted in the *Lubrication* portion of this section starting on page 20.
- Store unit inside if possible for longer life.
- 6. Repaint parts where paint is worn or scratched to prevent rust. Ask your dealer for Aerosol Land Pride touch-up paint.

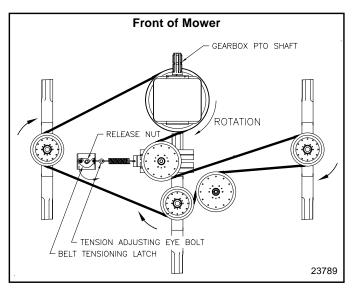
Land Pride Touch-up Paint								
Part No.	Part Description							
821-011C 821-002C	PAINT LP BEIGE SPRAY CAN PAINT GP BLACK SPRAY CAN							

#### V-Belt Installation

#### Refer to Figure 4-6:

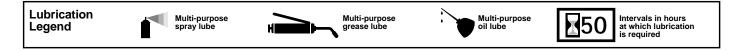
This illustration is also on the label located on the top of the mower deck.

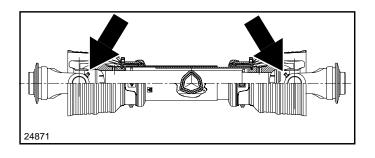
- 1. Remove right hand and left hand belt covers.
- Disengage belt tension by loosening eyebolt (#1) and removing spring (#2) from the tension-chain link (#3).
- 3. With tension relieved from belt remove old belt from pulleys.
- 4. To install a new belt be sure belt is positioned in all the pulley grooves. Engage belt tension by assembling the tension spring back on the eyebolt and tightening eyebolt to apply tension to the new belt. Check belt tension, refer to Figure 3-3 on page 16.
- Reinstall all belt covers and secure in place with hardware.



V-Belt Installation Figure 4-6

#### Lubrication



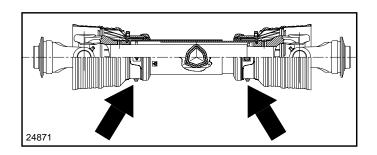




#### **Driveline Shaft U-Joints**

Type of Lubrication: Multi-purpose Grease

Quantity - 4 to 8 Pumps

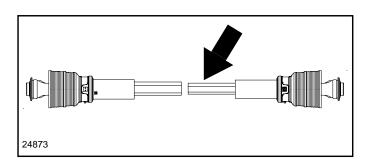




#### **Inner Tube Bearings**

Type of Lubrication: Multi-purpose Grease

Quantity - As Required

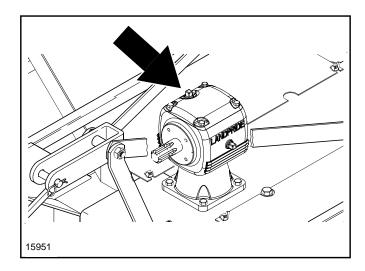




#### **Driveline Profiles**

Type of Lubrication: Multi-purpose Grease

Quantity - Clean & coat inner profile tube of driveline with a light film of grease and then reassemble.





#### **Gearbox**

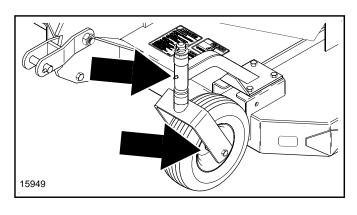
**IMPORTANT:** Do not overfill! Level mower and wait for gearbox oil to cool before checking. mower that is not level or a gearbox with hot oil will not show correct oil level on the dipstick.

Unscrew top vent plug in gearbox to remove dipstick. Wipe oil from dipstick and screw it back in without tightening. Unscrew dipstick and check oil level mark. If low, fill through top plug hole in gearbox with EP 80-90W oil until oil reaches full mark on the dipstick. Reinstall vent plug with dipstick and tighten.

Take your gearbox to a Land Pride dealer if it requires service.

Type of Lubrication: Gear Lube EP 80-90W

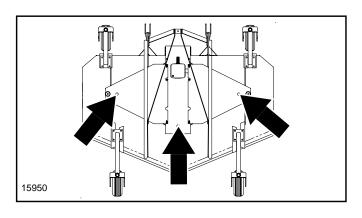
Quantity = Fill until oil reaches full mark on dipstick.





#### **Wheel Support Bushings & Wheel Bearings**

Type of Lubrication: Multi-purpose Grease





#### **Bearing in Blade Spindle Hubs**

Type of Lubrication: Multi-purpose Grease



FDR35 Series Rear Discharge Grooming Mowers						
	FDR3590					
Max. Engine HP.	60 HP.					
Cutting Width	90"					
Overall Width	92"					
Height	40"					
Length	81"					
Weight (Semi-Solid Tires)	1026 lbs.					
Cutting Height	3/4" to 5 1/4" in 1/2" Increments					
Deck Material Thickness	3/16"					
Blades-3	5/16" x 2 1/2" x 31 1/2" Medium lift - Hardened					
Blade Overlap	2 1/4"					
Blade Tip Speed	18,500 F.P.M.					
Blade Spindles	Cast Iron Greasable hubs: 1 3/8"					
Hitch	Category I, Lower Hitch: Floating Clevis with Plated Pins Top Link: Floating Clevis					
Quick Hitch	Fits Land Pride Quick-Hitch after S/N 294658					
Gauge Wheels	Castered 5" x 13" Semi-Solid Tire with Bearings					
Caster Wheel Spindle	1 1/4" Diameter with Nylon Bushings					
Drive Train	540 RPM PTO Gearbox 1:2.83 Ratio Cast Iron Housing Spring Loaded Single V-Belt					
Driveline	Heavy-Duty W/Quick Coupler Cat. 2					
Optional Equipment	Front Roller					



#### **FDR35 Series Rear Discharge Mowers**

Features	Benefits								
Cutting width	90" Cutting width								
Gearbox HP rating	25 - 60 HP								
Rear discharge	The wide, even dispersal of grass leaves a fine thin layer directly behind the mower vs. a possible windrow to the side. Keeps grass from blowing in unwanted areas. Easier to mow around objects.								
3/16" Deck thickness	Heavy deck material to aid in overall strength and longevity. Reinforced spindle mounts.								
Clevis type lower hitch points	Allows for easy hook-up by being able to remove pins and back into clevises.								
Floating 3-point	Top and bottom hitch points float up and down which allows the mower to float over uneven terrain.								
Lower hitch points adjust in and out	Accommodates many tractor configurations by adjusting in and out.								
13" Semi solid tires with roller bearings	13" Tires offer premium flotation. Roller bearings allow for a long life. Semi solid tires offer shock absorption.								
Heavy-duty Gauge wheel arms	1/4" Gauge wheel arms increases strength.								
Non-aligned gauge wheels	Rear wheels do not track behind the front wheels to reduce laying grass over.								
High blade tip speed	18,500 fpm for cleaner cutting and better dispersion of clippings.								
Heavy-duty roller bearings & 1 3/8" machined spindles	Roller bearings for smooth running and quiet operation, 1 3/8" machined spindles for durability, balanced performance, and accuracy. Cast iron housings for added protection and durability.								
Blade choices	Low, medium or high lift blades are available to match the customer's desires and needs for his particular uses. Mulching blades also available.								
Blade overlap	Blade overlap of 2 1/4" assures no skipping in tight turns.								
Single C-section Kevlar belt	Simple one belt design. Kevlar material adds additional strength.								
Spring loaded adjustable idler	Allows for constant and proper pressure on the belt.								
Blade bar	Bar gives additional support to blade.								
Top greasing spindles	Assures top bearing gets greased. No shields to remove.								
5 Year Limited Gear Box warranty	Shows our confidence in the gearbox integrity. 5 year housing, gears, shafts, 3 year bearings and seals.								
Quick Hitch Compatible	Compatible with Land Pride Quick Hitch (S/N 294658+) for easy attachment and removal and increased productivity.								

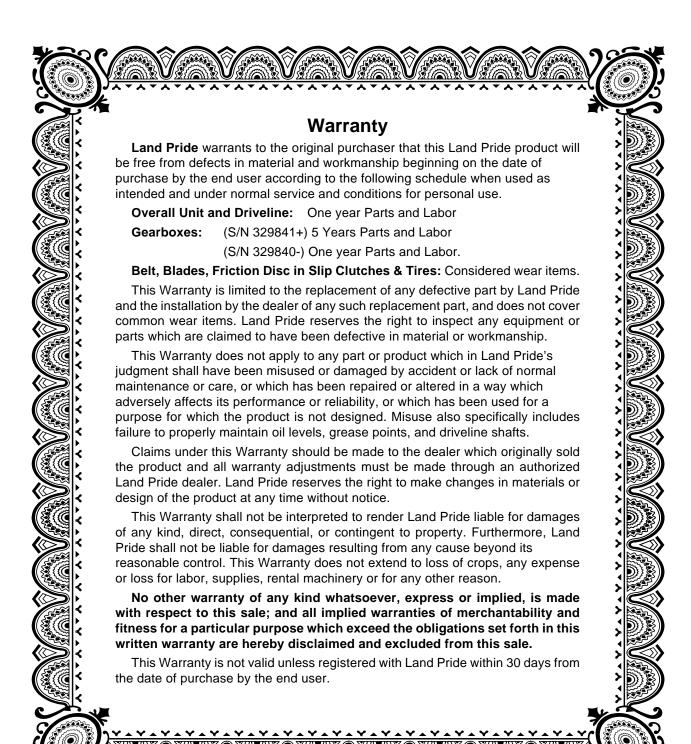


Problem	Solution							
Discharge chute plugged	Check installation of belt.							
	Wait until grass dries.							
	Raise cutting height of mower and cut grass twice.							
	Mow at full throttle (540 PTO rpm), check PTO speed and tractor engine.							
	Shift transmission to a lower gear.							
Do not try to clean discharge chute when mower is running. Bodily harm may occur!								
Belt slipping	Unplug and clean mower deck.							
	Remove belt guard shields and clean sheaves.							
	Tighten spring take-up eyebolt.							
	Replace belt.							
Patches of uncut grass	Mow at full throttle (540 PTO rpm), check PTO speed and tractor engine.							
	Shift transmission to a lower gear.							
	Tighten spring take-up eyebolt.							
	Sharpen and balance or replace blade.							
Excessive vibration	Remove belt guard shield and clean debris from belt area and sheaves. Replace the belt guard shield.							
	Replace drive belt.							
	Replace sheaves or align.							
	Readjust 3-point hitch to raise mower to maximum of 14 inches.							
Gearbox noisy	Check lubricant level.							
Blades scalping grass	Raise cutting height by adjusting wheels.							
	Change mowing pattern.							
	Reduce speed turns.							
Uneven cut	Shift to a lower gear.							
	Level mower.							
	Sharpen blades & balance or replace. Shimming of blade hubs may be required to level out all three blades. Blade hub shim part no. 310-367D (Optional).							
Tractor loaded down by mower	Mow at full throttle (540 PTO rpm).							
	Shift to a lower gear.							
	Clean mower.							



Torque Values Chart															
Bolt Head Identification										Bolt Head Identification					
Bolt Size (Inches)	S) Grade 2 Grade 5 Grad		de 8 (Metric		Bolt Size (Metric)	5.8 Class 5.8		8.8 Class 8.8		10.9 Class 10.9					
in-tpi <sup>1</sup>					N·m		_	mm x pitc			<b>N · m</b>		N·m		
1/4 - 20	7.4	5.6 6	11 13	10	16 18	12 14	<b>—</b>	M 5 X 0.8 M 6 X 1	7	3 5	11	5 8	9 15	11	
5/16" - 18	8.5 15	11	24	17	33	25	<b> </b> -	M 8 X 1.25	17	12	26	19	36	27	
5/16 - 18	17	13	26		37	27	<b>—</b>	M 8 X 1.25		<del> </del>	28	21	39	29	
3/8" - 16			42	19	59	44	_		18	13	52			53	
	27	20		31			<b>—</b>	M10 X 1.5	33	24	<b>.</b>	39	72		
3/8" - 24	31	22	47 67	35	67 95	70	<b>—</b>	M10 X 0.75	39	29	61 91	45 67	85	62 93	
7/16" - 14	43	32 36	75	49		78	<b>—</b>	M12 X 1.75	58	42	95	-	125	93	
7/16" - 20	49			55	105		<b>—</b>	M12 X 1.5	60	44		70	130		
1/2" - 13	66	49	105	76	145	105	<b>—</b>	M12 X 1	90	66	105	77	145	105	
1/2" - 20	75	55	115	85	165	120	<b>—</b>	M14 X 2	92	68	145	105	200	150	
9/16" - 12	95	70	150	110	210	155	<b>—</b>	M14 X 1.5	99	73	155	115	1215	160	
9/16" - 18	105	79	165	120	235	170	<b>—</b>	M16 X 2	145	105	225	165	315	230	
5/8" - 11	130	97	205	150	285	210	<b>—</b>	M16 X 1.5	155	115	240	180	335	245	
5/8" - 18	150	110	230	170	325	240	-	M18 X 2.5	195	145	310	230	405	300	
3/4" - 10	235	170	360	265	510	375	<b>—</b>	M18 X 1.5	220	165	350	260	485	355	
3/4" - 16	260	190	405	295	570	420	<b>—</b>	M20 X 2.5	280	205	440	325	610	450	
7/8" - 9	225	165	585	430	820	605	<b>—</b>	M20 X 1.5	310	230	650	480	900	665	
7/8" - 14	250	185	640	475	905	670	<b>—</b>	M24 X 3	480	355	760	560	1050	780	
1" - 8	340	250	875	645	1230	910	<b>—</b>	M24 X 2	525	390	830	610	1150	845	
1" - 12	370	275	955	705	1350	995	_	M30 X 3.5	960	705	1510	1120	2100	1550	
1-1/8" - 7	480	355	1080	795	1750	1290	<b>—</b>	M30 X 2	1060	785	1680	1240	2320	1710	
1 1/8" - 12	540	395	1210	890	1960	1440	<b>—</b>	M36 X 3.5	1730	1270	2650	1950	3660	2700	
1 1/4" - 7	680	500	1520	1120	2460	1820	<b>—</b>	M36 X 2	1880	1380	2960	2190	4100	3220	
1 1/4" - 12	750	555	1680	1240	2730	2010		in-tpi = noi			eter in i	nches-th	reads p	er in.	
1 3/8" - 6	890	655	1990	1470	3230	2380	<sup>2</sup> N⋅ m = newton-meters								
1 3/8" - 12	1010	745	2270	1670	3680	2710	<sup>3</sup> ft-lb= foot pounds								
1 1/2" - 6	1180	870	2640	1950	4290	3160	4mm x pitch = nominal thread diameter in millimeters x thread								
1 1/2" - 12	1330	980	2970	2190	4820	3560	pitch								
Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.															

#### **Notes**





Corporate Office: P.O. Box 5060 Salina, Kansas 67402-5060 USA www.landpride.com